

Amendments to the Claims:

Please cancel calms 16 - 37 without prejudice or disclaimer of the subject matter contained therein.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 37 (canceled)

38. (New) A thin film head having a reading part and a recording part comprising:

an upper magnetic pole;

a lower magnetic pole having a lower magnetic main layer, a lower magnetic pole front end portion on the lower magnetic main layer, and a projection step portion on the lower magnetic pole front end portion; and

a non-magnetic insulating layer on the lower magnetic main layer, which is formed at an opposite side to an air bearing surface of the projection step portion;

wherein the projection step portion includes one portion which faces the upper magnetic pole and another portion which is wider than the one portion at a predetermined depth from the air bearing surface and which does not face the upper magnetic pole, the another portion having a width which is wider than a width of the one portion of the projection step portion at the air bearing surface; and

wherein a distance from the air bearing surface to a starting position line of the another portion of the projection step portion is shorter than a distance from the air bearing surface to the air bearing surface side edge of the upper magnetic pole which faces the one portion of the projection step portion.

39. (New) A thin film head according to claim 38, wherein the another portion of the projection step portion is formed at both side of a track center line of the projection step portion.

40. (New) A thin film head according to claim 38, wherein the width of the projection step portion in the track width direction at the air bearing surface is substantially equal to a width in the track width direction of the upper magnetic pole at the air bearing surface.

41. (New) A thin film head according to claim 38, wherein a distance from a track center line of the projection step portion to an edge of the another portion of the step projection portion in track width direction at the predetermined depth from the air bearing surface is greater than a distance from a track center line of the upper magnetic pole to an edge of the upper magnetic pole in the track width direction at the predetermined depth from the air bearing surface.

42. (New) A thin film head according to claim 38, wherein a distance from a track center line of the projection step portion to an edge of the another portion of the projection step portion in a track width direction at a depth of the starting position line from the air bearing surface is greater than a distance from a track center line of the upper magnetic pole to an edge of the upper magnetic pole in the track width direction at the depth of the starting position line from the air bearing surface.

43. (New) A thin film head according to claim 38, wherein the another portion of the projection step portion has rectangular contours.

44. (New) A thin film head having a reading part and a recording part comprising:

an upper magnetic pole;

a lower magnetic pole having a lower magnetic main layer, a lower magnetic pole front end portion on the lower magnetic main layer, and a projection step portion on the lower magnetic pole front end portion; and

a non-magnetic insulating layer on the lower magnetic main layer, which is formed at an opposite side to an air bearing surface of the projection step portion;

wherein the projection step portion includes one portion which faces the upper magnetic pole and another portion which is wider than the one portion at a predetermined depth from the air bearing surface and which does not face the upper magnetic pole, the another portion having a width which is wider than a width of the one portion of the projection step portion at the air bearing surface; and

wherein a distance from the air bearing surface to a starting position line of the another portion of the projection step portion is shorter than a distance from the air bearing surface to a position of an air bearing surface side edge of the upper magnetic pole where a distance from a track center line of the upper magnetic pole to the air bearing surface side edge position of the upper magnetic pole is equal to a distance from the track center line of the projection step portion to a position on the starting position line.

45. (New) A thin film head according to claim 44, wherein the projection step portion is formed at both side of a track center line of the projection step portion.

46. (New) A thin film head according to claim 44, wherein the width of the projection step portion in the track width direction at an air bearing surface is substantially equal to a width in the track width direction of the upper magnetic pole at the air bearing surface.

47. (New) A thin film head according to claim 44, wherein a distance from a track center line of the projection step portion to an edge of the wider step projection portion in track width direction at the predetermined depth from the air bearing surface is greater than a distance from a track center line of the upper magnetic pole to an edge of the upper magnetic pole in the track width direction at the predetermined depth from the air bearing surface.

48. (New) A thin film head according to claim 44, wherein a distance from a track center line of the projection step portion to an edge of the wider projection step portion in a track width direction at a depth of the starting position line from the air bearing surface is greater than a distance from a track center line of the upper magnetic pole to an edge of the upper magnetic pole in the track width direction at the depth of the starting position line from the air bearing surface.

49. (New) A thin film head according to claim 44, wherein the another portion of the projection step portion has rectangular contours.

50. (New) A thin film head having a reading part and a recording part comprising:  
an upper magnetic pole;

a lower magnetic pole having a lower magnetic main layer, a lower magnetic pole front end portion on the lower magnetic main layer, and a projection step portion on the lower magnetic pole front end portion; and,

a non-magnetic insulating layer on the lower magnetic main layer, which is formed at an opposite side of an air bearing surface of the projection step portion; and

a gap layer disposed between the upper magnetic pole and the projection step portion;

wherein a projection step portion includes one portion which faces the upper magnetic pole and another portion which is wider than the one portion at a predetermined depth from the air bearing surface and which does not face the upper magnetic pole, the another portion having a width which is wider than a width of the one portion of the projection step portion at the air bearing surface; and

wherein a distance from the air bearing surface to a starting position of the another portion of the projection step portion is shorter than a distance from the air bearing surface to a position of an air bearing surface side edge of the upper magnetic pole which faces the gap layer.

51. (New) A thin film head according to claim 50, wherein the projection step portion is formed at both side of a track center line of the projection step portion.

52. (New) A thin film head according to claim 50, wherein the width of the projection step portion in the track width direction at an air bearing surface is substantially equal to a width in the track width direction of the upper magnetic pole at the air bearing surface.

53. (New) A thin film head according to claim 50, wherein a distance from a track center line of the projection step portion to an edge of the wider projection step portion in track width direction at the predetermined depth from the air bearing surface is greater than a distance from a track center line of the upper magnetic pole to an edge of the upper magnetic pole in the track width direction at the predetermined depth from the air bearing surface.

54. (New) A thin film head according to claim 50, wherein a distance from a track center line of the projection step portion to an edge of the wider projection step portion in a track width direction at a depth of the starting position line from the air bearing surface is greater than a distance from a track center line of the upper magnetic pole to an edge of the upper magnetic pole in the track width direction at the depth of the starting position line from the air bearing surface.

55. (New) A thin film head according to claim 50, wherein the another portion of the projection step portion has rectangular contours.